

**ABSTRACT**

The subject invention relates to compositions comprising an enzyme mixture which comprises a first enzyme and a second enzyme, where the first enzyme comprises a DNA polymerization activity and the second enzyme comprises an 3'-5' exonuclease activity and a reduced DNA polymerization activity. The invention also relates to the above compositions in kit format and methods for high fidelity DNA synthesis using the subject compositions of the invention.

**REST AVAILABLE COPY**